

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 August 2005 (18.08.2005)

PCT

(10) International Publication Number
WO 2005/076116 A3

(51) International Patent Classification⁷: **G06F 3/033**

(21) International Application Number:
PCT/IB2005/050490

(22) International Filing Date: 8 February 2005 (08.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
04100461.5 9 February 2004 (09.02.2004) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LIESS, Martin, D.** [DE/DE]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **WEIJERS, Aldegonda, L.** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agents: **ROLFES, Johannes, G., A.** et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

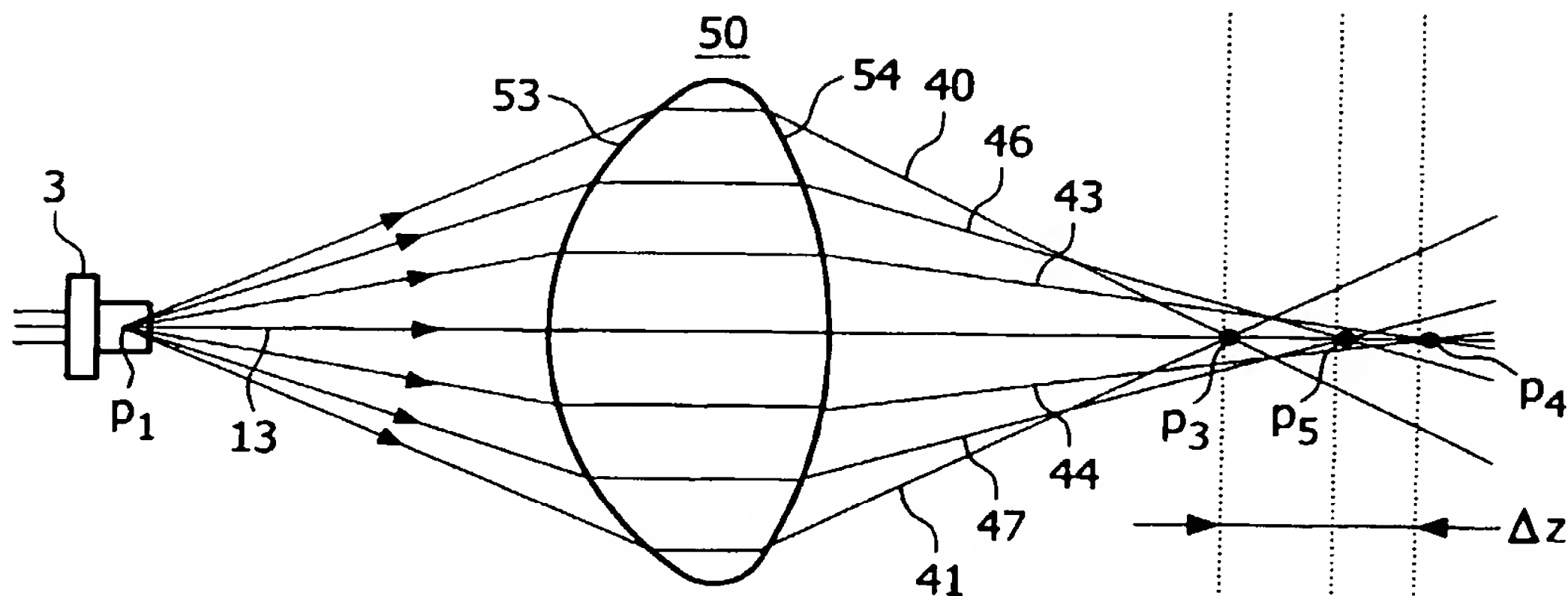
Published:

— with international search report

(88) Date of publication of the international search report:
2 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: OPTICAL INPUT DEVICE BASED ON DOPPLER SHIFT AND LASER SELF-MIXING



(57) Abstract: In an optical input device based on movement of an object (15) and the device relative to each other and which comprising at least one optical sensor unit including a laser (3) having a laser cavity for generating a measuring beam (13), converging means (50) for converging the measuring beam in an action plane and for converging measuring beam radiation reflected by the object in the laser cavity to generate a self-mixing effect in the laser and measuring means for measuring the result of the self-mixing effect, which effect is determined by said movement, the converging means (50) is adapted to provide a self-mixing effect that is smaller than a possible maximum but larger than a detection threshold for an extended range of distances (AZ) between the object and the device. This allows obtaining the required self-mixing effect in an extended range of distances between the object and the device.

WO 2005/076116 A3